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10/087,761	03/05/2002	Kuo-Cheng Lu	06720.0081	6208

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EXAMINER	
GREY, CHRISTOPHER P	
ART UNIT	PAPER NUMBER
2667	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/087,761	LU ET AL.	
	Examiner	Art Unit	
	Christopher P. Grey	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities: "one of the second level **switch**". Grammatical error, where switch should be plural.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin (US 20020124107) in view of Kalkunte et al. (US 6813268), hereinafter referred to as Kalkunte.

Claim 1, 20, 21, 27, 28, 30, 31, 35 Goodwin discloses a plurality of network switches for providing an exchange of network packets (paragraph 0004), each of the network switches including a forwarding database (0005, 0016), wherein the network switch system is capable of providing at least one refresh packet (paragraph 0026 and 0027), upon receiving the network packets, to synchronize the forwarding databases of the plurality of network switches (paragraph 0013).

Goodwin discloses updating a database within the switch (element 254 in fig 5). Goodwin does not specifically disclose each of the plurality of network switches

registers the at least one refresh packet to the forwarding database of the network switch upon receiving the refresh packets.

Kalkunte discloses each of the plurality of network switches registers the at least one refresh packet to the forwarding database of the network switch upon receiving the refresh packets (Col 22 lines 34-64).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the method of table synchronization as disclosed by Kalkunte within the switch and applied to the databases as disclosed by Goodwin. The motivation for this combination is to perform efficient table synchronization (see Kalkunte: Page 22 lines 34-64).

Claim 2, 13, 14, 22, 29 Goodwin does not specifically disclose the forwarding databases including at least one refresh timer in an address entry for recording the validity of a corresponding address entry in the forwarding databases of neighboring switches.

Kalkunte discloses the forwarding databases including at least one refresh timer in an address entry for recording the validity of a corresponding address entry in the forwarding databases of neighboring switches (Col 5 lines 42-Col 6 lines 7 and Col 22 lines 34-Col 23 line 29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the feature of address aging as disclosed by Kalkunte within the switches and databases as disclosed by Goodwin. The motivation for this combination

is to eliminate the storage of address information, which is no longer valid or useful (Col 5 lines 42-Col 6 lines 7).

Claim 3, 15, 23, 33 Goodwin does not specifically disclose the forwarding databases include an address entry having an age timer for the address entry that records the validity of the address entry, an address for the address entry, and associated port information for the address.

Kalkunte discloses the forwarding databases include an address entry having an age timer for the address entry that records the validity of the address entry, an address for the address entry, and associated port information for the address (Col 5 lines 42-Col 6 lines 7 and Col 22 lines 34-Col 23 line 29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the feature of address aging as disclosed by Kalkunte within the switches and databases as disclosed by Goodwin. The motivation for this combination is to eliminate the storage of address information that is no longer valid or useful (Col 5 lines 42-Col 6 lines 7).

Claim 4, 16, 17, 32, 36 Goodwin discloses the plurality of network switches includes a first switch and a second switch, each having a forwarding database, the first switch sending a refresh packet to a second switch when the first switch receives a network packet and the network packet containing address information that the forwarding database of the first switch has no corresponding address entry (paragraph 0016, 0026-0029, 0040, 0041;

Goodwin does not specifically disclose the network packet containing address information that a corresponding address entry in the forwarding database of the second network switch has expired.

Kalkunte discloses the network packet containing address information that a corresponding address entry in the forwarding database of the second network switch has expired (Col 22 line 34-Col 23 line29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the feature of address aging as disclosed by Kalkunte within the switches and databases as disclosed by Goodwin. The motivation for this combination is to eliminate the storage of address information that is no longer valid or useful (Col 5 lines 42-Col 6 lines 7).

Claim 5, 26, 34, 37 The combined teachings of Goodwin and Kalkunte disclose a plurality of switches containing ports, synchronizing forwarding databases and providing refresh packets for synchronization as disclosed in the rejection of claim 1. However, the combined teachings of Goodwin and Kalkunte do not specifically disclose a plurality of first-level switches having a plurality of upward ports operating in a slave mode, a plurality of second-level switches including a channeling switch, wherein each of the first-level switches is configured to connect to each of the second-level switches, wherein at least one second-level switch operates in a brain mode and at least one second-level switch operates in a master mode.

The prior art of the present application discloses a plurality of first-level switches having a plurality of upward ports operating in a slave mode, a plurality of second-level

switches including a channeling switch, wherein each of the first-level switches is configured to connect to each of the second-level switches, wherein at least one second-level switch operates in a brain mode and at least one second-level switch operates in a master mode (see fig 6 and pages 8 and 9).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Goodwin and Kalkunte within the structure of the system as disclosed by the prior art of the present application. The motivation for this combination is for synchronizing forwarding databases as disclosed in the rejection of claim 1.

Claim 6, 7, 8, 18, 19, 25, 38, 39, 40 Goodwin does not specifically disclose when one of the first-level switches sends a network packet to one of the second first-level switches through the channeling switch and needs to send a refresh packet containing the source address information of the network packet, the first-level switch sends the refresh packet to each of the second-level switches except the channeling switch.

Kalkunte discloses a feature incorporated within a switch where information dedicated to a specific port may be dropped (not sent) in the case of an event (Col 28 lines 13-Col 29 line 16). Furthermore Kalkunte discloses a blocking mechanism for blocking the transmission from a specific port within a switch.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the switch as disclosed by Goodwin to employ the blocking feature as disclosed by Kalkunte. The motivation for this combination is to limit congestion .

Claim 9, 24 Goodwin discloses each of the first-level switches employs the upward ports as trunk pods for sending the network packets (paragraph 0018, 0029, 0038, 0039).

Claim 10 discloses the network switches being Ethernet switches (paragraph 0023 and 0024).

Claim 11, 12 The prior art of the present application discloses a plurality of first-level switches having a plurality of upward ports operating in a slave mode, a plurality of second-level switches including a channeling switch, wherein each of the first-level switches is configured to connect to each of the second-level switches, wherein at least one second-level switch operates in a brain mode and at least one second-level switch operates in a master mode (see fig 6 and pages 8 and 9).

Goodwin discloses a plurality of network switches for providing an exchange of network packets (paragraph 0004), each of the network switches including a forwarding database (0005, 0016), wherein the network switch system is capable of providing at least one refresh packet (paragraph 0026 and 0027), upon receiving the network packets, to synchronize the forwarding databases of the plurality of network switches (paragraph 0013).

Goodwin discloses updating a database within the switch (element 254 in fig 5). Goodwin does not specifically disclose each of the plurality of network switches registers the at least one refresh packet to the forwarding database of the network switch upon receiving the refresh packets.

Kalkunte discloses each of the plurality of network switches registers the at least one refresh packet to the forwarding database of the network switch upon receiving the refresh packets (Col 22 lines 34-64).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the method of table synchronization as disclosed by Kalkunte within the switch and applied to the databases as disclosed by Goodwin. The motivation for this combination is to perform efficient table synchronization (see Kalkunte: Page 22 lines 34-64).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Lee et al. (US6275890) discloses connecting a number of master ports to a number of slave ports through an arbitrator..

(b) Nanavati et al. (US 20050063313) discloses connecting a number of master and slave nodes according to a clustering method.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art Unit 2667

1/2/06

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SUPERVISORY PATENT EXAMINER
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2/3/06